STATE OF CALIFORNIA

WATER RESOURCES CONTROL BOARD

DIVISION OF DRINKING WATER

TO: United States Forest Service – Havilah Work Center Water System
Water System No. 1502572

Attn: Peter Landucci, Environmental Engineer
United States Forest Service (USFS)
1839 S. Newcomb Street
Porterville, CA 93257

CERTIFIED MAIL

CITATION FOR VIOLATION OF CALIFORNIA CODE OF REGULATIONS, TITLE 22, SECTIONS 64426.1(b)(2) AND (c) - July 2015

C I T A T I O N NO. 03-19-16C-001

Issued on January 7, 2016

STATEMENT OF FACTS

United States Forest Service (USFS) – Havilah Work Center Water System (hereinafter Water System) is classified as a non-transient non-community water system and serves a population of approximately 28 persons through five service connections. The Water System has one active source of supply, Well 01 (Primary Station Code: 1502572-001), a 20,000-gallon storage tank and distribution system. Well 01 is an artesian well and supplies water without any pumping equipment. No treatment is currently provided to the water produced by the well. The Water System operates under the authority of Permit No. 03-19-13P-016, issued on August 6, 2013, by the Division of Drinking Water and Environmental Management, California Department of Public Health (now State Water Resources Control Board).

Section 116650 of the California Health and Safety Code authorizes the issuance of a citation to a public water system for violation of the California Safe Drinking Water Act (Health and Safety Code, Division 104, Part 12, Chapter 4, commencing with Section 116270) (hereinafter "California SDWA") or any regulation, standard, permit or order issued or adopted thereunder.

The State Water Resources Control Board (hereinafter State Board), acting by and through its Division of Drinking Water and the Deputy Director for the Division of Drinking Water (hereinafter "Deputy Director"), hereby issues a citation to the USFS – Havilah Work Center Water System (mailing address: 1839 S. Newcomb Street, Porterville, CA 93257) for violations of the California Code of Regulations (CCR), Title 22, Section 64426, subsections (b)(2) and (c).

- The Water System is required to collect one (1) routine bacteriological sample per month.
- One (1) routine bacteriological quality sample collected on July 8, 2015, from the distribution system, tested positive for total coliform bacteria.
- Two (2) out of three (3) repeat samples collected on July 13, 2015, from the distribution system, (analyzed by the Most Probable Number (MPN) test method), showed the presence total coliform bacteria.
- One (1) repeat sample (also counted towards the Ground Water Rule's triggered source sampling requirement), collected on July 13, 2015, from Well 01, and analyzed by the MPN test method, also showed the presence of total coliform bacteria.
- No further bacteriological sampling was conducted in July 2015.

- **USFS – Havilah Work Center Water System failed the total coliform maximum contaminant level (MCL) for July 2015 [Section 64426.1(b)(2), *Authorities*].**
- None of the bacteriological quality samples collected in July 2015, from the distribution system or the system well, tested positive for *E.coli* bacteria.
- On August 13, 2015, Peter Landucci, Environmental Engineer with the Water System, notified the State Board that the Water System failed the total coliform MCL for July 2015.
- According to the email communication received on November 4, 2015, from Mr. Landucci, HS Aqua LLC (the Water System's the then contract sampler notified the USFS on July 14, 2015, of the total coliform positive samples from July 13, 2015. Due to various reasons, the USFS terminated sampling contract with HS Aqua LLC, sometime in July 2015.
- **USFS – Havilah Work Center Water System failed to notify the State Board of the July 2015 total coliform MCL violation within 24 hours [Section 64426.1(c), *Authorities*].**
- Due to non-receipt of the final results for the bacteriological quality samples collected on July 13, 2015, the State Board staff made requests for the final laboratory results and documentation of communication from the laboratory to the sampler about notification of the total coliform positive samples. These requests were made on October 12 and 13, 2015 by email, and October 14, 2015, in a conference call between Peter Landucci and State Board staff. The State Board received copies of the final results on November 4, 2015.
- From August 17, 2015 to August 21, 2015, emergency disinfection and flushing was provided to Water System's the storage tank, and the distribution system to help clear bacteriological contamination from the Water System.

- Five (5) special bacteriological samples collected on August 17, 2015, from the distribution system, tested negative for total coliform bacteria.
- On August 26, 2015, six (6) routine bacteriological samples were collected from the distribution system, storage tank, and Well 01, and they all tested negative for total coliform bacteria.
- On August 14, 2015, public notice and *Certification of Completion of Public Notification* forms were emailed to the Water System, for the July 2015 total coliform MCL failure.
- On August 15, 2015, the State Board received dated and signed copies of the public notice and the *Certification of Completion of Public Notification* from the Water System. According to these documents, public notification was completed on August 14, 2015.
- On August 14, 2015, an investigation report template was also emailed to the Water System, for the July 2015 total coliform MCL failure.
- **To date, the State Board has not received a completed investigation report, in response to the July 2015 TCRMCL failure, from the Water System. [Section 64426(b)(2), *Authorities*]**
- It is noted that the Water System previously failed the total coliform MCL for July 2014 and December 2014. Considering that the July 2015 total coliform MCL failure is the third failure in a 12-month period, the Water System is directed to install continuous chlorination treatment.
- One (1) routine bacteriological sample collected on September 16, 2015, from the distribution system, tested negative for total coliform bacteria.
- One (1) routine bacteriological sample collected on October 8, 2015, from the distribution system, tested negative for total coliform bacteria.
- One (1) routine bacteriological sample collected on November 5, 2015, from the distribution system, tested negative for total coliform bacteria.

- Results of all bacteriological samples collected from January 2014 to November 2015, are summarized in **Attachment A.**

AUTHORITIES

Section 116577 of the CHSC, states in relevant part:
"(a) Each public water system shall reimburse the State Board for the actual costs incurred by the State Board for any of the following enforcement activities related to that water system:
(1) Preparing, issuing, and monitoring compliance with, an order or citation.
(2) Preparing, and issuing public notification
...
(b) The State Board shall submit an invoice for these enforcement costs to the public water system that requires payment prior to September 1 of the fiscal year following the fiscal year in which the costs were incurred. The invoice shall indicate the total hours expended, the reasons for the expenditure, and the hourly cost rate of the State Board. The costs set forth in the invoice shall not exceed the total actual costs to the State Board of the enforcement activities specified in this section."...

Section 116650 of the CHSC, states in relevant part:
"(a) If the State Board determines that a public water system is in violation of this chapter or any regulation, permit, standard, citation, or order issued or adopted thereunder, the State Board may issue a citation to the public water system. The citation shall be served upon the public water system personally or by certified mail. Service shall be deemed effective as of the date of personal service or the date of receipt of the certified mail. If a person to whom a citation is directed refuses to accept delivery of the certified mail, the date of service shall be deemed to be the date of mailing.
(b) Each citation shall be in writing and shall describe the nature of the violation or violations, including a reference to the statutory provision, standard, order, citation, permit, or regulation alleged to have been violated.
(c) A citation may specify a date for elimination or correction of the condition constituting the violation.
(d) A citation may include the assessment of a penalty as specified in subdivision (e).
(e) The State Board may assess a penalty in an amount not to exceed one thousand dollars ($1,000) per day for each day that a violation occurred, and for each day that a violation continues to occur. A separate penalty may be assessed for each violation."

Section 116655 of the CHSC, states in relevant part:
(a) Whenever the State Board determines that any person has violated or is violating this chapter, or any permit, regulation, or standard issued or adopted pursuant to this chapter, the director may issue an order doing any of the following:
(1) Directing compliance forthwith.
(2) Directing compliance in accordance with a time schedule set by the State Board.
(3) Directing that appropriate preventive action be taken in the case of a threatened violation.
(b) An order issued pursuant to this section may include, but shall not be limited to, any or all of the following requirements:
(1) That the existing plant, works, or system be repaired, altered, or added to.
(2) That purification or treatment works be installed.
(3) That the source of the water supply be changed.
(4) That no additional service connection be made to the system.
(5) That the water supply, the plant, or the system be monitored.
(6) That a report on the condition and operation of the plant, works, system, or water supply be submitted to the State Board.

California Code of Regulations (hereinafter, CCR), Title 22, Section 64423, Table 64423-A establishes the minimum routine sampling requirements, and states in relevant part:

Monthly Population Served	*Service Connections*	*Minimum Number of Samples*
25 to 1000	15 to 400	1 per month
1,001 to 2,500	401 to 890	2 per month
2,501 to 3,300	891 to 1,180	3 per month
3,301 to 4,100	1,181 to 1,460	4 per month
4,101 to 4,900	1,461 to 1,750	5 per month
4,901 to 5,800	1,751 to 2,100	6 per month
5,801 to 6,700	2,101 to 2,400	7 per month
6,701 to 7,600	2,401 to 2,700	2 per week
7,601 to 12,900	2,701 to 4,600	3 per week
12,901 to 17,200	4,601 to 6,100	4 per week
17,201 to 21,500	6,101 to 7,700	5 per week
21,501 to 25,000	7,701 to 8,900	6 per week
25,001 to 33,000	8,901 to 11,800	8 per week
33,001 to 41,000	11,801 to 14,600	10 per week
41,001 to 50,000	14,601 to 17,900	12 per week
50,001 to 59,000	17,901 to 21,100	15 per week

CCR, Title 22, Section 64426 establishes the significant rise in bacteriological count and states in relevant part:

"(a) Any of the following criteria shall indicate a possible significant rise in bacterial count:

(1) A system collecting at least 40 samples per month has a total coliform-positive routine sample followed by two total coliform-positive samples in the repeat sample set;

(2) A system has a sample which is positive for fecal coliform or E. coli; or

(3) A system fails the total coliform Maximum Contaminant Level (MCL) as defined in 64426.1.

(b) When the coliform levels specified in subsection (a) are reached or exceeded, the water supplier shall:

(2) Submit to the State Board information on the current status of physical works and operating procedures which may have caused the elevated bacteriological findings, or any information on community illness suspected of being waterborne. This shall include, but not be limited to:

(A) Current operating procedures that are or could potentially be related to the increase in bacterial count;

(B) Any interruptions in the treatment process;

(C) System pressure loss to less than 5 psi;

(D) Vandalism and/or unauthorized access to facilities;

(E) Physical evidence indicating bacteriological contamination of facilities;

(F) Analytical results of any additional samples collected, including source samples;

(G) Community illness suspected of being waterborne; and

(H) Records of the investigation and any action taken."...

CCR, Title 22, Section 64426.1 establishes the total coliform maximum contaminant level and states in relevant part:

"(a) Results of all samples collected in a calendar month pursuant to Sections 64423, 64424, and 64425 that are not invalidated by the State Board or the laboratory shall be included in determining compliance with the total coliform MCL. Special purpose samples such as those listed in 64421(b) and samples collected by the water supplier during special investigations shall not be used to determine compliance with the total coliform MCL.

(b) A public water system is in violation of the total coliform MCL when any of the following occurs:

(1) For a public water system which collects at least 40 samples per month, more than 5.0

percent of the samples collected during any month are total coliform-positive; or

(2) For a public water system with collects fewer than 40 samples per month, more than one sample collected during any month is total coliform-positive; or

(3) Any repeat sample is fecal coliform-positive or E. coli-positive; or

(4) Any repeat sample following a fecal coliform-positive or E. coli-positive routine sample is total coliform-positive.

(c) If a public water system is not in compliance with paragraphs (b)(1) through (4), during any month in which it supplies water to the public, the water supplier shall notify the State Board by the end of the business day on which this is determined, unless the determination occurs after the State Board office is closed, in which case the supplier shall notify the State Board within 24 hours of the determination. The water supplier shall also notify the consumers served by the water system. A Tier 2 Public Notice shall be given for violations of paragraphs (b)(1) or (2), pursuant to section 64463.4. A Tier 1 Public Notice shall be given for violations of paragraphs (b)(3) or (4), pursuant to section 64463.1."

DETERMINATIONS

Based upon the above Statement of Facts and Authorities, the State Board determines that the Water System has violated the following:

1. CCR, Title 22, Section 64426.1(b)(2); Specifically, the Water System violated the total coliform MCL for July 2015 when more than one sample during the month, tested positive for total coliform bacteria.

2. CCR, Title 22, Section 64426.1(c); Specifically, the Water System failed to notify the State Board within 24 hours of notification by laboratory of the total coliform violation for July 2015.

3. CR, Title 22, Section 64426(b)(2); Specifically, the Water System failed to submit an investigation report to the State Board for the July 2015 total coliform MCL failure.

The above violations are classified as non-continuing violations.

DIRECTIVES

USFS – Havilah Work Center Water System is hereby directed to take the following actions:

1. Cease and desist from failing to comply with Section 116555(a) of the California Health and Safety Code (CHSC) and Sections 64426.1(b)(2), 64426.1(c), and 64426(b)(2) of Title 22, California Code of Regulations.

2. In the future, the Water System shall notify the State Board within 24 hours of determination of the total coliform MCL violation.

3. By **February 8, 2016**, the Water System shall complete and submit the enclosed Investigation Report to the State Board that describes the incident and all corrective actions taken, and the results of the investigation for the July 2015 total coliform MCL failure. The investigation report template is provided in **Attachment B.**

4. By **February 8, 2016**, the Water System shall submit a permit amendment application to the State Board to allow the continuous chlorination of the water supply. A completed permit amendment application (copy provided as **Attachment C**) shall be used to make application and continuous chlorination equipment shall be installed on the discharge of the Water System's Well 01. A permit application fee of $250.00 (payable in the form of a check) shall also be submitted to the State Board. Information regarding the permanent chlorination equipment and installation procedures shall be submitted to the State Board. A copy of the Operational Guidelines for Hypo-Chlorination Systems, is being provided as **Attachment D**. A blank Chlorination Data Sheet is provided as **Attachment E**, and shall be completed and returned to the State Board at the time of submittal of the permit amendment application. The

installation of chlorination treatment shall be conducted by a person qualified and experienced with chlorination equipment. A detectable chlorine residual shall be maintained in all areas of the distribution system at all times. The chlorine residual shall be measured at the time and location of the collection of the monthly distribution system bacteriological samples and all other samples collected downstream of the chlorine injection point and reported to the State Board on the laboratory analysis reports.

5. The Water System shall utilize either Certified Distribution Operators or Treatment Operators to operate the chlorination equipment. The operator(s) shall visit and review the chlorination treatment on at least a weekly basis and document the date and time of the visit, the settings on the chemical feed equipment, the chlorine stock on hand and the chlorine residual in the distribution system. The State Board recommends daily inspection of the chlorination equipment. Records of documentation of the site visits and chlorination treatment shall be maintained and made available to the State Board when requested.

6. The Water System shall initiate monthly sampling of the raw well water for coliform bacteria. The sample must be collected at a location ahead of chlorination. The results of all samples shall be submitted to the State Board by the 10th day of the following month.

7. The Water System shall initiate distribution sampling for TTHM and HAA5 on an annual basis starting **2016**. The Stage 2 DBP Monitoring Plan form provided as **Attachment F** shall be completed and submitted to the State Board by **March 1, 2016**, for review and approval. The sample(s) must be collected during the month of warmest water temperature (July, August or

September) from a location representing the maximum residence time in the distribution system. If the annual sample(s) exceeds the MCL, the monitoring frequency will be increased to 1 sample per quarter. The Water System must notify the State Board Division if an exceedance of the TTHM, HAA5 MCLs or Chlorine Disinfectant MRDL (maximum residual disinfectant level) of 4.0 mg/L occurs. These levels are listed below.

Contaminant	MCL
Total Trihalomethane (TTHM)	0.080 mg/L
Haloacetic Acids (HAA5)	0.060 mg/L
	MRDL
Chlorine	4.0 mg/L as Cl_2

8. Regulations require all community and non-transient non-community water systems to have a Certified Distribution Operator. Section 64413.3 requires the Water System to have in their employ or under contract a class D1 Certified Distribution Operator. The Water System shall submit to the State Board by **February 8, 2016,** the name of their Certified Operator along with a copy of the Operator's current certificate. If the Water System has an operator under contract, a copy of the current contract must be submitted to the State Board along with the Contract Operator's current Distribution Operator Certificate.

9. Any document requested by the citation shall be submitted to the following address:

Jaswinder S. Dhaliwal, P.E., Senior Sanitary Engineer
State Water Resources Control Board
4925 Commerce Drive, Suite 120
Bakersfield, CA 93309

10. The Water System shall reimburse the State Board, in accordance with an invoice that shall be provided to the Water System, the costs for enforcement activities, and such reimbursement shall be made prior to September 1 (or by a different date if specified by the State Board) of the fiscal year following the fiscal year in which such costs are incurred as described in CHSC Sections 116577(a)(1-2) and 116577(b).

FURTHER ENFORCEMENT ACTIONS

Section 116270, Chapter 4, Part 12, Division 104 of the CHSC authorizes the State Board to: issue additional citations with assessment of penalties if a public water system continues to fail or correct a violation identified in a citation; take action to suspend or revoke a permit that has been issued to a public water system if the system has violated applicable law or regulations or has failed to comply with orders of the State Board; and petition the superior court to take various enforcement measures against a public water system that has failed to comply with orders of the State Board. The State Board does not waive any further enforcement action by issuance of this citation.

PARTIES BOUND

This citation shall apply to and be binding upon USFS – Havilah Work Center Water System, its officers, directors, agents, employees, contractors, successors, and assignees.

SEVERABILITY

The directives of this citation are severable, and USFS – Havilah Work Center Water System shall comply with each and every provision thereof, notwithstanding the effectiveness of any other provision.

CIVIL PENALTIES

Section 116650, subsections (d) and (e) of the CHSC allow for the assessment of a civil penalty for failure to comply with the requirements of the Safe Drinking Water Act. Failure to comply with any provision of this Citation may result in the State Board imposing an administrative penalty in an amount not to exceed $1,000 (one thousand dollars) per day as of the date of violation of any provision of this Citation.

Jan. 7, 2016
Date

Jasmnder Dhaliwal
Jaswinder S. Dhaliwal, P.E.
Senior Sanitary Engineer
Drinking Water Field Operations Branch

Certified Mail No. 7015 0640 0006 0208 6535

ATTACHMENTS

Attachment A:	Summary of Bacteriological Samples Collected from January 2014 – November 2015
Attachment B:	Investigation Report Template
Attachment C:	Permit Amendment Application Form
Attachment D:	Operational Guidelines for Hypo-Chlorination Systems
Attachment E:	Blank Chlorination Data Sheet
Attachment F:	Stage 2 Disinfectants/Disinfection Byproduct Rule Monitoring Plan Form

CC: Kern County Environmental Health Services Department (w/o attachments)
Cranmer Engineering, Inc., Contract Sampler (via email)

JSD/dc

Attachment A

US Forest Service - Haviliah Work Center

1502572 *Distribution System Freq: 1/M*

Sample Date	Time	Location	T Coli	E Coli	F Coli	Type	Cl2	Violation	Comment
1/9/2014	9:13	1ROU	A	A		Routine			
2/5/2014	9:09	1ROU	A	A		Routine			
3/5/2014	10:10	1ROU	A	A		Routine			
4/9/2014	13:33	1ROU	A	A		Routine			
5/7/2014	9:00	1ROU	A	A		Routine			
6/4/2014	9:00	1ROU	A	A		Routine			
7/10/2014	8:41	1ROU	P	A		Routine			
7/14/2014	14:56	1REP1	P	A		Repeat			
7/14/2014	15:00	1REP2	P	A		Repeat			
7/14/2014	15:19	1REP3	P	A		Repeat		MCL	Cit #03-19-14C-020 Issued
7/29/2014	17:30	1ROU	A	A		Other			
7/29/2014	17:33	4ROU	A	A		Other			
7/29/2014	17:37	3ROU	A	A		Other			
7/29/2014	17:42	2ROU	A	A		Other			
7/29/2014	17:50	5ROU	A	A		Other			
7/29/2014	17:54	STORAGE TANK	A	A		Other			
8/6/2014	9:55	1ROU	A	A		Routine			
8/6/2014	10:00	4ROU	A	A		Routine			
8/6/2014	10:06	3ROU	A	A		Routine			
8/6/2014	10:11	2ROU	A	A		Routine			
8/6/2014	10:24	5ROU	A	A		Routine			
9/4/2014	10:25	1ROU	A	A		Routine			
10/8/2014	10:52	1ROU	A	A		Routine			
11/13/2014	10:08	1ROU	A	A		Routine			
12/3/2014	10:46	1ROU	P	A		Routine			
12/3/2014	10:46	1ROU	P	A		Routine			
12/8/2014	11:05	1REP2	A	A		Repeat			
12/8/2014	11:05	Barracks	A	A		Repeat			
12/8/2014	12:55	Warehouse	P	A		Repeat			
12/8/2014	13:00	1REP1	P	A		Repeat			
12/8/2014	13:00	1REP3	P	A		Repeat			
12/8/2014	13:00	Engine Office, Kitc	P	A		Repeat			
12/8/2014	13:10	1REP4	P	A		Repeat			
12/8/2014	13:10	Residential Trailer	P	A		Repeat		MCL	Cit 03-19-15C-001 Issued
12/10/2014	13:51	STORAGE TANK	A	A		Repeat			

Sample Date	*Time*	*Location*	*T Coli*	*E Coli*	*F Coli*	*Type*	*Cl2*	*Violation*	*Comment*
12/10/2014	13:51	Tank	A	A		Repeat			
12/23/2014	8:51	1ROU	A	A		Other			
12/23/2014	8:51	Kitchen Sink	A	A		Other			
12/23/2014	8:59	3ROU	A	A		Other			
12/23/2014	8:59	Barracks	A	A		Other			
12/23/2014	9:01	2ROU	A	A		Other			
12/23/2014	9:01	Residential Trailer	A	A		Other			
12/23/2014	9:08	4ROU	A	A		Other			
12/23/2014	9:08	Warehouse	A	A		Other			
12/23/2014	9:10	5ROU	A	A		Other			
12/23/2014	9:10	New Barracks	A	A		Other			
12/23/2014	9:16	STORAGE TANK	A	A		Other			
12/23/2014	9:16	Storage Tank	A	A		Other			
1/7/2015	9:30	5ROU	A	A		Routine			
1/7/2015	9:40	1ROU	A	A		Routine			
1/7/2015	9:44	2ROU	A	A		Routine			
1/7/2015	9:48	3ROU	A	A		Routine			
1/7/2015	9:51	4ROU	A	A		Routine			
2/4/2015	10:09	2ROU	A	A		Routine			
3/4/2015	10:05	1ROU	A	A		Routine			
4/9/2015	11:40	Kitchen Sink	A	A		Routine			
6/2/2015		System	A	A					
6/3/2015	18:45	Havilah WC	A	A		Routine			
7/8/2015	9:50	Havilah WC	P	A		Routine			
7/13/2015	14:10	Havilah Main Offic	200.5	<1.0		Repeat			
7/13/2015	14:20	Havilah WC Barra	>200.5	<1.0		Repeat			Cit 03-19-16C-001 Issued
8/13/2015	8:50	3ROU	A	A		Routine			
8/17/2015	13:00	1ROU	A	A		Other			
8/17/2015	13:00	Engine Office	A	A		Routine			
8/17/2015	13:09	2ROU	A	A		Other			
8/17/2015	13:15	3ROU	A	A		Other			
8/17/2015	13:19	4ROU	A	A		Other			
8/17/2015	13:22	5ROU	A	A		Other			
8/17/2015	14:00	STORAGE TANK	A	A		Other			
8/26/2015	10:29	5ROU	A	A		Routine			
8/26/2015	10:36	1ROU	A	A		Routine			
8/26/2015	10:40	4ROU	A	A		Routine			
8/26/2015	10:50	2ROU	A	A		Routine			

Sample Date	*Time*	*Location*	*T Coli*	*E Coli*	*F Coli*	*Type*	*Cl2*	*Violation*	*Comment*
9/16/2015	16:45	3ROU	A	A		Routine			

US Forest Service - Haviliah Work Center

1502572 *Source Monitoring Freq:*

Sample Date	*Time*	*Source*	*T Coli*	*E Coli*	*F Coli*	*Violation*	*Comment*
7/14/2014	15:24	WELL #1	A	A			GWR Compliance
12/10/2014	13:53	Well #1	A	A			GWR Compliance
7/13/2015	14:00	Havilah WC Wellhead	>200.5	<1.0			GWR sample
8/17/2015	13:28	WELL #1	A	A			

Attachment B

POSITIVE TOTAL COLIFORM INVESTIGATION
Simple Well with Pressure Tank Systems

This form is intended to assist public water systems in completing the investigation required by the California Department of Public Health (Section 64426(b) of Title 22, California Code of Regulations) and may be modified to take into account conditions unique to the system.

ADMINISTRATIVE INFORMATION

PWS Name:		PWSID NUMBER:	
	Name	**Address**	**Telephone #**
Operator in Responsible Charge (ORC)			
Person that collected TC samples if different than ORC			
Owner			
Certified Laboratory for Microbiological Analyses			
Date Investigation Completed:			
Name of Month(s) and Year of Total Coliform MCL Failure:			

INVESTIGATION DETAILS

SOURCE	WELL (name)	WELL (name)	WELL (name)	WELL (name)	COMMENTS
1. Inspect each well head for physical defects and report					
a. Is raw water sample tap upstream from point of disinfection?					
b. Is wellhead vent pipe screened?					
c. Is wellhead seal watertight?					
d. Is well head located in pit or is any piping from the wellhead submerged?					
e. Does the ground surface slope towards well head?					
f. Is there evidence of standing water near the wellhead?					
g. Are there any connections to the raw water piping that could be cross connections? (describe all connections in comments)					
h. Is the wellhead secured to prevent unauthorized access?					
i. To what treatment plant (name) does this well pump?					
j. How often do you take a raw water total coliform (TC) test?					
k. Provide the date and result of the last TC test at this location					

DISTRIBUTION SYSTEM	SYSTEM RESPONSES
1. What is the minimum pressure you are maintaining in the distribution system?	
2. Did pressure in the distribution system drop to less than 5 psi prior to experiencing the TCR positive finding?	

POSITIVE TOTAL COLIFORM INVESTIGATION

DISTRIBUTION SYSTEM	SYSTEM RESPONSES
3. Has the distribution system been worked on within the last week? (service taps, hydrant flushing, main breaks, main extensions, etc.) If yes, provide details.	
4. Are there any signs of excavations near your distribution system not under the direct control of your maintenance staff?	
5. Did you inspect your distribution system to check for mainline leaks? Do you or did you have a mainline leak?	
6. If there was a mainline leak, when was it repaired?	
7. On what date was the distribution system last flushed?	
8. Is there a written flushing procedure you can provide for our review?	
9 Do you have an active cross connection control program?	
10. What is name and phone number of your Cross-Connection Control Program Coordinator?	
11. Is the review and testing of backflow prevention devices current?	
12. On what date was the last physical survey of the system done to identify cross-connections?	

SAMPLE SITE EVALUATION (Complete for all TC+ or EC+ findings)	Routine Site TC+ or EC+	Upstream Site	Downstream Site	Sample 4 (specify)
1. What is the height of the sample tap above grade? (inches)				
2. Is the sample tap located in an **ext**erior location or is it protected by an **enc**losure?				
3. Is the sample tap threaded, have a swing arm (kitchen sink) or aerator (sinks)?				
4. Is the sample tap in good condition, free of leaks around the stem or packing?				
5. Can the sample tap be adjusted to the point where a good laminar flow can be achieved without excessive splash?				
6. Is the sample tap and area around the sample tap clean and dry (free of animal droppings. other contaminants or spray irrigation systems)				
7 Is the area around the sample tap free of excessive vegetation or other impediments to sample collection?				
8. Describe how the tap was treated in preparation for sample collection (ran water, swabbed with disinfectant, flamed, etc.)				
9. Is this sample tap designated on the sampling plan submitted with this information request?				
10. What were the weather conditions at the time of the positive sample (rainy, windy, sunny),				

POSITIVE TOTAL COLIFORM INVESTIGATION

GENERAL OPERATIONS:	Response
1. Where there any power outages that affected water system facilities during the 30 days prior to the TC+ or EC + findings?	
2. Where there any main breaks, water outages, or low pressure reported in the service area where TC+ or EC+ samples were located.	
3. Does the system have backup power or elevated storage?	
4. During or soon after bacteriological quality problems, did you receive any complaints of any customers' illness suspected of being waterborne? How many?	
5. What were the symptoms of illness if you received complaints about customers being sick?	

ADDITIONAL INFORMATION TO BE SUBMITTED WITH RESPONSES TO THE ABOVE QUESTIONS

1. **Sketch** of System showing all sources, treatment locations, storage tanks, microbiological sampling sites and general layout of the distribution system including the location of all hazardous connections such as the wastewater treatment facility.
2. A set of photographs of the well, pressure tanks, and storage tanks in the system may be submitted if they would show that the contamination is directly related and changes have been made since the last inspection by our Department
3. Name, certification level and certificate number of the Operator in Responsible Charge.
4. Copy of the last cross connection survey performed that identifies the location of all unprotected cross connections.

SUMMARY: BASED ON THE RESULTS OF YOUR INVESTIGATION AND ANY OTHER INFORMATION AT YOUR DISPOSAL, WHAT DO YOU BELIEVE TO BE THE CAUSE OF THE POSITIVE TOTAL COLIFORM SAMPLES FROM YOUR PUBLIC WATER SYSTEM?

CERTIFICATION: I CERTIFY THAT THE INFORMATION SUBMITTED IN RESPONSE TO THE QUESTIONS ABOVE IS ACCURATE TO THE BEST OF MY PROFESSIONAL KNOWLEDGE

NAME:_____ **TITLE:**_____ **DATE:** _____

Attachment C

STATE OF CALIFORNIA
APPLICATION
FOR
DOMESTIC WATER SUPPLY PERMIT AMENDMENT

Applicant: _____
(Enter the name of legal owner, person(s) or organization)

Address: _____

System Name: _____

System Number: _____

TO: State Water Resources Control Board
Division of Drinking Water
Southern California Branch
Drinking Water Field Operations
Tehachapi District Office
4925 Commerce Drive, Suite 120
Bakersfield, California, 93309

Pursuant and subject to the requirements of the California Health and Safety Code, Division 104, Part 12, Chapter 4 (California Safe Drinking Water Act), Article 7, Section 116550, relating to changes requiring an amended permit, application is hereby made to amend an existing water supply permit to _____
_____
_____
_____
_____

I (We) declare under penalty of perjury that the statements on this application and on the accompanying attachments are correct to my (our) knowledge and that I (we) are acting under authority and direction of the responsible legal entity under whose name this application is made.

By: _____

Title: _____

Address: _____

_____

Telephone: _____

Dated: _____

Attachment D

State of California
State Water Resources Control Board
Division of Drinking Water
Southern California Branch
Drinking Water Field Operations
Tehachapi District
July 2008 (Updated July 2014)

Operational Guidelines for Hypo-Chlorination Systems

This document summarizes basic operational requirements for chlorination systems serving public water systems. Compliance with these requirements will help ensure reliable and consistent chlorination. This document does not address:

- chlorination of surface water, which is subject to more stringent requirements.
- safety considerations, which are of obvious importance.
- design standards. The design of new chlorination systems is reviewed as part of the Division's water supply permit process. Problems with design of existing systems noted by the Division during inspections will be brought to the attention of the water supplier.

Applicability: These requirements are directed towards chlorination of groundwater sources (i.e., wells), which are not subject to significant bacteriological contamination. Wells, which show significant bacteriological contamination of the raw water, may be subject to additional reliability and treatment requirements.

The bacteriological quality of the source should be determined based on raw water bacteriological sampling. Ongoing sampling of the raw water source should be done to ensure that a significant problem is not being masked by the chlorination process.

Equipment

1. The equipment must be in good operating condition and adequate for the application.
2. The equipment must be properly housed.
3. The equipment must provide a consistent feed rate under all operating conditions.
4. The chlorinator must be activated by the circuit controlling the well pump or in response to a signal from the flow meter.
5. A source flow meter must be provided at the discharge header in order to calculate chemical dosages.
6. The chlorine solution storage crock must be designed for use in mixing and measuring chlorine solutions. It should be large enough to hold enough solution for one week of peak use plus a prudent reserve. The amount of chemical in the crock must be able to be accurately measured by taking readings marked on the container.
7. Monitoring for chlorine residuals must be done using the DPD method. For example, the Hach DR100 Colorimeter or equivalent may be used.

Chemical Additive Requirements

Effective January 1, 1994, all chemicals or products, including chlorine, added directly to the drinking water, as part of a treatment process must meet the ANSI/NSF Standard 60. The manufacturer or distributor of the chemical should be able to provide you with documentation of compliance with this requirement.

Monitoring of System

Inspecting and adjusting the equipment: Equipment should be inspected often enough to ensure prompt detection of problems. Daily inspection of the equipment is recommended. The required frequency of inspecting the equipment is set on a case-by-case basis depending on the system configuration, the consequences of an undetected failure and historical system reliability.

The inspection should consist of a visual inspection of the equipment, checking and filling the chlorine solution vessel, measuring the chlorine residual, adjusting the equipment, calculating the dosage rate and writing down the results of the inspection. Any problems noted must be corrected.

Monitoring the chlorine residual: The chlorine residual of the water must be measured and recorded on a regular basis. Daily measurement of the residual is generally required and is strongly recommended. The required frequency for measuring the residual is set on a case-by-case basis.

Responding to failures or interruptions: Each system must have a written procedure for responding to chlorination failures or interruptions. This procedure must include prompt correction of the problem and restoration of the chlorine residual. The availability of a replacement or back-up chemical feed system must be addressed.

Record Keeping: The minimum record keeping requirements are shown on the attached forms. These forms or their equivalent must be used to maintain the following minimum records:

1. Date and time of inspection, name of operator
2. Chlorine residual and location of residual measurement
3. Production records
4. Operational notes including weekly calculation of chemical dosage (see attached form)
5. Chlorination failure log
6. Maintenance performed (both preventative and unscheduled maintenance)

Operator Certification

Section 106885 of the California Health and Safety Code states that all persons responsible for the operation of water treatment plants shall possess a State Water Treatment/Distribution Operator's certificate of appropriate grade. Water treatment plants include chemical feed systems such as chlorinators. If the treatment facility is not required to provide Giardia or virus inactivation pursuant to Section 64654(a), a certified distribution operator is required. A certified water treatment operator may do the work related to the water treatment. For operation of a chlorination system for small water systems, the minimum certification requirement is a Grade 1 distribution operator's certificate. Generally, there are two ways to comply with the certification requirements:

1. The current system owner, operator or manager may obtain an operator's certificate.
2. The services of an outside certified operator could be obtained.

For well-operated chlorination systems using groundwater sources, a reasonable period of time can be provided for coming into full compliance with this requirement. For additional information, please contact the Tehachapi District Office at (661) 335-7315.

Attachments - Forms for calculating dosages, chlorination failure plan, and monitoring

State Water Resources Control Board
Division of Drinking Water

Calculating Chemical Dosages

The calculation of chemical dosages is important in order to track the effectiveness of the chemical feed process. To calculate the chemical dosage over a specific period of time, you need to know:

1. Quantity of water produced (gallons)
2. Amount of solution injected (gallons)
3. Percent of available chlorine in liquid hypochlorite (usually 5.25% or 12.5%)
4. Number of gallons of liquid hypochlorite used to make the solution.
5. Number of gallons of solution made with one gallon of the liquid hypochlorite. For example, if one gallon of liquid hypochlorite were added to 24 gallons of water, the final mixture would contain 25 gallons of solution.

The dosage is calculated by plugging these numbers into the following formula.

NOTE: "X" means multiply!

$$\text{Dosage} = \frac{10{,}000 \times (\text{Amount of solution injected}) \times (\text{Percent of available chlorine})}{(\text{Quantity of water produced}) \times (\text{Gallons of solution made with one gallon of hypochlorite})}$$

Example: Over a seven-day period, a system produced 40,000 gallons of water. During that time period, the system used 30 gallons of solution. When mixing up the solution, the operator mixes one gallon of chlorine with 24 gallons of water to make 25 gallons of solution. The strength of the liquid chlorine solution is 12.5 %. The following is a calculation of the dosage:

$$\text{Dosage} = \frac{10{,}000 \times (30) \times (12.5)}{(40{,}000) \times (25)} = 3.75 \text{ milligrams per liter (mg/L)}$$

Weekly Dosage Calculations

Week 1 - Date _____ Dosage = $\frac{10{,}000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Week 2 - Date _____ Dosage = $\frac{10{,}000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Week 3 - Date _____ Dosage = $\frac{10{,}000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Week 4 - Date _____ Dosage = $\frac{10{,}000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

State Water Resources Control Board
Division of Drinking Water

Response to Failures and Interruptions for Chlorination Systems

Name of System: _____ System Number: _____

In the event the chlorination system is found to be not operating or injecting too little chlorine solution, the following plan of action will be taken to correct the problem or situation. The plan should address the availability of a spare chlorinator, manual feeding of chlorine until the problem is resolved, more frequent chlorine residual monitoring, etc.:

Short-term chlorinator interruption (i.e. less than one day):

_____

_____

_____

_____

_____

_____

Long-term chlorine interruption (i.e. chlorinator cannot be repaired):

_____

_____

_____

_____

_____

_____

_____

_____

_____

Prepared by: _____ Date: _____

Notes: This plan is to be posted at the chlorination station.
This plan is to be reviewed and updated annually.

State Water Resources Control Board
Southern California Branch
Drinking Water Field Operations

Chlorination Operational Log

Month and Year _____

System Name _____ **Facility Name**_____

Maximum Capacity of the Chlorination Pump _____

Were there any malfunctions of the chlorination system this month? Yes _____ No_____

If yes, list the date the malfunction occurred and action taken. Problems that cannot be promptly corrected must be reported to the Division. Bacteriological sampling must be conducted if the safety of the water is in question:

_____

_____

Date	Time	Operator	Chlorine Rate		Crock Level	Meter Reading	Chlorine Residual		Operational Notes
			Speed	Stroke			Injection Pt.	Distribution	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

1. **Operational notes include weekly dosage calculations, addition of solution, changes in feed rate and other pertinent info.**
2. **This form is to be maintained for each chlorination facility.**
3. **This form is to be kept on file for review by the Division.**

Chlorine Residual Report

System Name:_____ Month:_____
System Number:_____ Year:_____

Day	Sampling Address	Residual
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER

CHLORINATION DATA

System Name:_____ **System No.:**_____
Source of Information:_____
Collected by:_____ **Date:** _____

Reason for chlorination (emergency, mandatory or optional):	
Water Source:	
Water treated (raw/filtered etc.):	
Chlorine demand character:	
Dosage:	
Point of application:	
Mixing:	
Contact time before use:	
Contact time for residual test:	
Water Flow: Variation:	
How measured:	
Equipment: Type:	
Make:	
Model:	
Capacity:	
Condition:	
Automatic switchover capability?	
Portable emergency chlorinator available?	
Chlorine residual monitored continuously?	
Low level residual alarm?	
At what level of chlorine residual is the alarm activated?	
How often are residual analyses conducted?	
Type of residual measured (free or combined):	
Type of residual test used:	
Chemical added: (% available chlorine, form):	
Cylinder or crock capacity:	
Stock on hand/days supply:	
Housing and Safety Features: Housing:	
Insulation:	
Heating:	
Locks:	
Lighting:	
Ventilation:	
Leak detector with alarm:	
Switches outside chlorination room:	
Gas mask:	
Is an emergency plan of action posted?	
Operation and maintenance: Lapse during changes:	
Ability to make repairs:	
How often is the equipment inspected?	
Operations records kept:	
Condition of scales:	
Remarks and deficiencies:	

Attachment F

Stage II Disinfectants/Disinfection Byproduct Rule Monitoring Plan Form

For Small Water Systems

TTHM MCL = 0.080 mg/l **HAA5 MCL** = 0.060 mg/l

System Name: _____ **System No.** _____

No. of Monitoring Locations: _____ **Population:** _____ **No. of pressure zones:** _____

Source Type: *(Circle all that apply)*: Groundwater Surface Water Both

(The following information may be attached in a separate table or sheet if necessary.)
A map of the distribution system must be attached to include all the facilities mentioned below and DBP sample location(s) **is required.** A picture of the DBP monitoring location(s) is optional.

TTHM/HAA5 Monitoring Frequency

Location 1: _____ **PSCode:** _____

Frequency: Routine _____ Increased _____ Reduced _____

Sample Location Description (*Address, Building No., Source, etc.*): _____

Water Quality Lab: _____

Sample Date (Month): _____

Justification for selecting site: _____

Location 2: _____ **PSCode:** _____

Frequency: Routine _____ Increased _____ Reduced _____

Sample Location Description (*Address, Building No., Source, etc.*): _____

Water Quality Lab: _____

Sample Date (Month): _____

Justification for selecting site: _____

(If there are more monitoring locations attach on an additional sheet.)

Calculating MCL Compliance
Compliance will be based on concentration of an annual sample result per sample location.

Disinfectant Residual Monitoring (Free Chlorine Residual)

Sample Location & Frequency: *Same time and location as coliform bacteriological monitoring sample(s). See system Bacteriological Sample Siting Plan. The maximum residual disinfectant level (MRDL) = 4 mg/L.*

Source Name(s), Location(s) and, if applicable, Seasonal Variability of Use:

_____

Treatment Plant Facilities *(Includes each chlorinator and its injection point)*:

_____

Storage Tank(s) Identification & Location:

_____

_____

Signature Date